



IFPS Science Steering Team



IFPS Methodology Workshop
March 2004

http://www.nws.noaa.gov/ost/ifps_sst/





Goals



- Introduce the ISST (origin and membership)
- Outline recent activities and accomplishments
- List current activities
- Provide a roadmap of ISST activities

WHAT IS THE ISST ?

- IFPS Science Steering Committee
- Comprised of members from each NWS region
 - Composed of field experts chartered to identify and prioritize ongoing IFPS science issues
- Reports to OST (Jack Hayes)
 - A formal conduit between field personnel and NWSH
- First assembled early 2003

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Team Members

- Pacific Region: Bill Ward (PRHQ)
- Alaska Region: Eric Stevens (WFO Fairbanks)
- Western Region: Brad Colman (WFO Seattle - team leader) and Mark Jackson (WFO Salt Lake City)
- Southern Region: Andy Patrick (WFO Corpus Christi)
- Central Region: Dan Baumgardt (WFO LaCrosse)
- Eastern Region: Steve Keighton (WFO Blacksburg)
- NCEP: Peter Manousos (HPC – backup team leader)
- NWSHQ: Kevin Schrab (OST - facilitator)

WHY ISST ?

Origin and Background

WR SOO/DOH WORKSHOP

- May 2002
 - Concerns raised on the design and implementation of IFPS
- WR SOO Writing Team formed
 - Represented all WR SOOs/DOHs
 - Tasked with authoring a WR SOO/DOH IFPS White Paper
- White Paper Gained WR RD and MIC support
 - Eventual endorsement and support of all NWS Regions

WR Writing Team Recognized...

- IFPS/GFE is aggressive and ambitious
- Revamps much of field operations
- Provides many challenges known and unknown
- Potentially delivers an unprecedented spectrum of forecasting services

HOWEVER

- Degraded model data available in GFE
 - Both horizontal and vertical
- Forecasters spending unnecessary amount of time compensating for this deficiency
 - Prevents full benefit of EMC models
 - Robs time from serving other mission critical responsibilities
- No verification system to assess skill

WR SOO/DOH IFPS White Paper

Assumptions

- Digital forecasting is the right thing to do
 - Strive to remain on current schedule, but remain realistic
 - React quickly to meet needs and eliminate deficiencies
- Success of IFPS requires exploring, developing, and implementing new methods and technologies
- Must ensure efficient use of human capital throughout all services

WR SOO/DOH IFPS White Paper

Core Recommendations

- Develop a National real-time, gridded verification system
- Provide full-resolution NCEP model grids
- Objectively produce bias-corrected model grids for WFO use
- Implement methods to objectively downscale forecast grids
- Incorporate climatology grids into the GFE process
- Deliver short and medium-range ensemble grids
- Modify the GFE software to ingest real-time data
- Optimize ways to tap forecaster expertise

Follow-On Efforts Addressing Initial White Paper Recommendations

- WR SOO/DOH Workshop of 2003
 - White paper was focus of workshop
 - Focus groups tasked to identify requirements and possible approaches for each of the WP recommendations, then present to participants
 - Groups composed of SOOs/DOHs and subject matter experts
 - MDL, FSL, universities, and NCAR represented
 - OS&T and program leaders attended
 - Members of the newly-formed IFPS Science Steering Team attended
 - First draft distributed for review/comment to all NWS SOOs/DOHs
 - Final report on workshop results completed by writing team and distributed to all SOOs/DOHs, Regions, and NWSH on 22 Aug '03

Connection to ISST

- ISST used May 2003 WR SOO/DOH workshop for its initial assembly and starting point
- Initial task was to address white paper raised issues
 - ISST used May 2003 WR SOO/DOH workshop for its initial in situ assembly

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ISST Accomplishments and Activities

- Identified an opportunity to fill "transmission gaps" on the SBN and developed a proposal now nearly implemented
 - Eta surface and BL fields
- Working with MDL on their efforts to develop COOP MOS (now in GFE) and gridded MOS
 - Number of MOS sites increased by a factor of 3
- Provided scientific critique and feedback into the 10-506 directive process and NVIWT verification plan design
- Investigated and prioritized a spectrum of downscaling possibilities and reported to S&T Committee
- Conceived, developed, and championed the Eta extension

ISST Current Issues

- Downscaling
 - 8-day Eta-12 Extension over CONUS using GFS boundary conditions
- NVIWT Verification Plan
- Analysis of Record

Downscaling – Purpose

- Extend the information content of “coarse” model prediction fields to finer scales
 - Reflect the influence of detailed local effects such as terrain and/or land-surface
- Initialization within GFE, especially at day 8
- Analysis of Record needed to verify NDFD

8-day Eta Extension

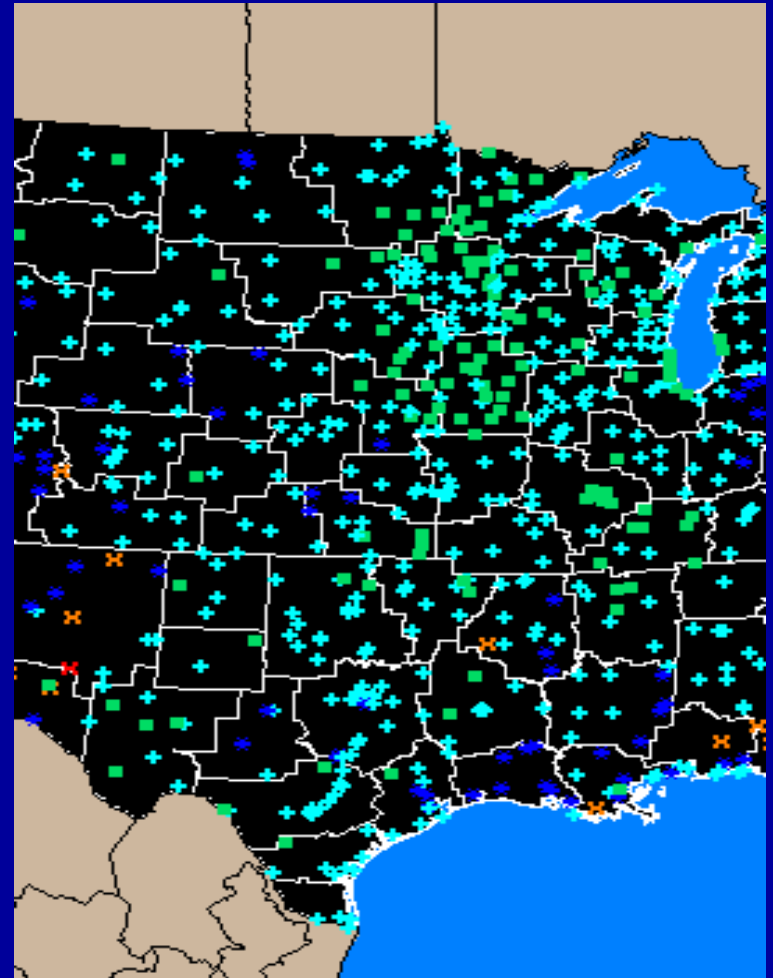
- Background:
 - Designed to bring quick relief to forecasters by giving physically consistent and seamless option for high resolution medium range grids
 - Has received broad support from Regions
- Status and timeline:
 - Test grids available to setup optimal baseline SMARTINIT
 - March: 30-day testing and evaluation period
 - Forecasters at a subset of WFOs to assess impact on operations
 - Better evaluation of internal drift issues (limited set of fields available via web page)
 - Test Regional WAN distribution method
 - HPC will perform model diagnostics

8-day Eta Extension (continued)

- Mid April: convergence of Eta runs complete and Eta extension running operationally
 - GRIB1 Regional distribution continues
- Late May: DVB-S efforts free up SBN bandwidth
- June: OB3.2 upgrade to AWIPS configuration
- June: Eta extension operational via SBN using GRIB2

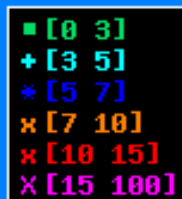
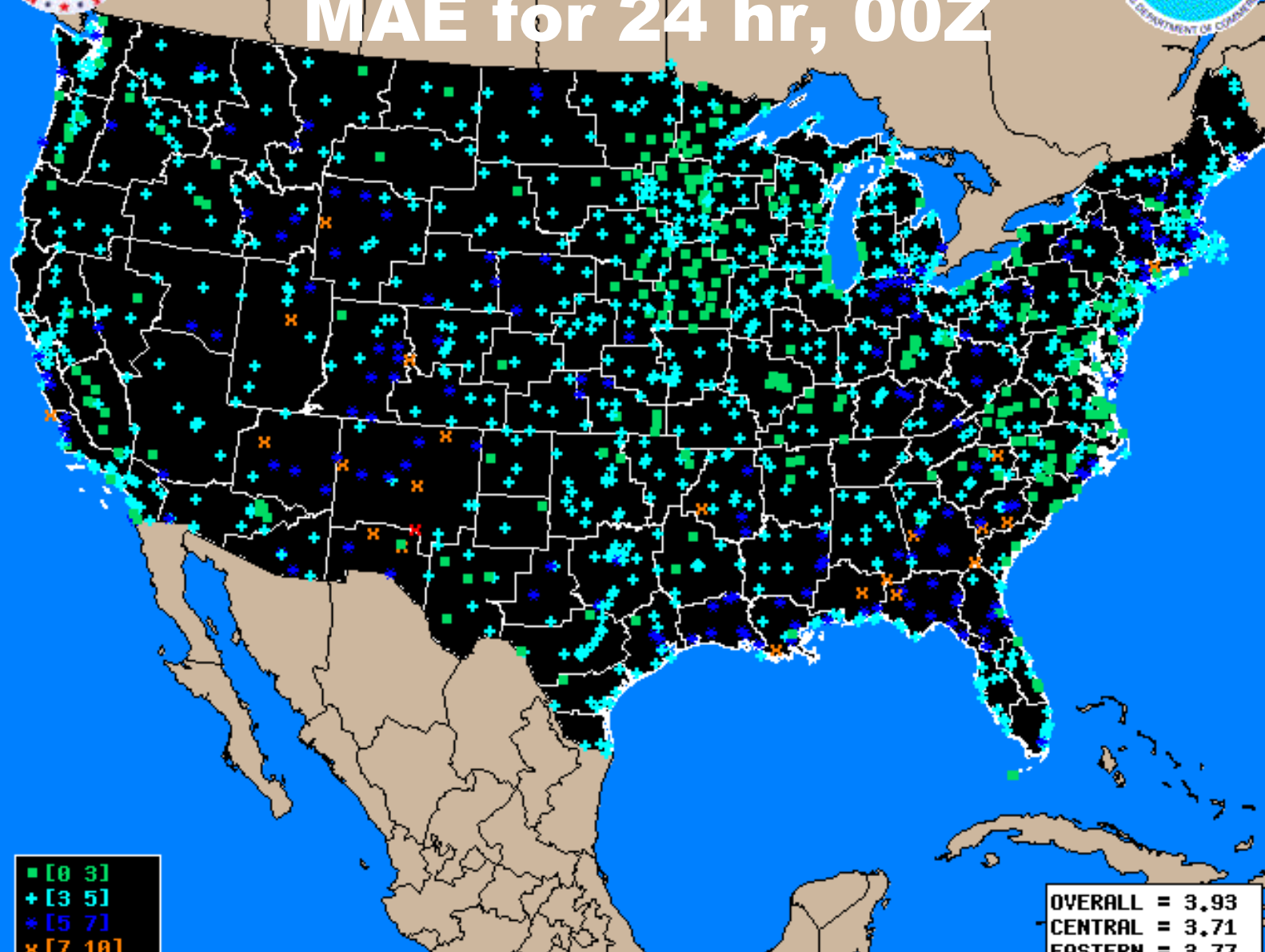
ISST Current Issues

- Verification and Analysis of Record
 - Reviewing Verification Plan
 - Initial discussion on how to get ball rolling





3-hourly Temperature MAE for 24 hr, 00Z



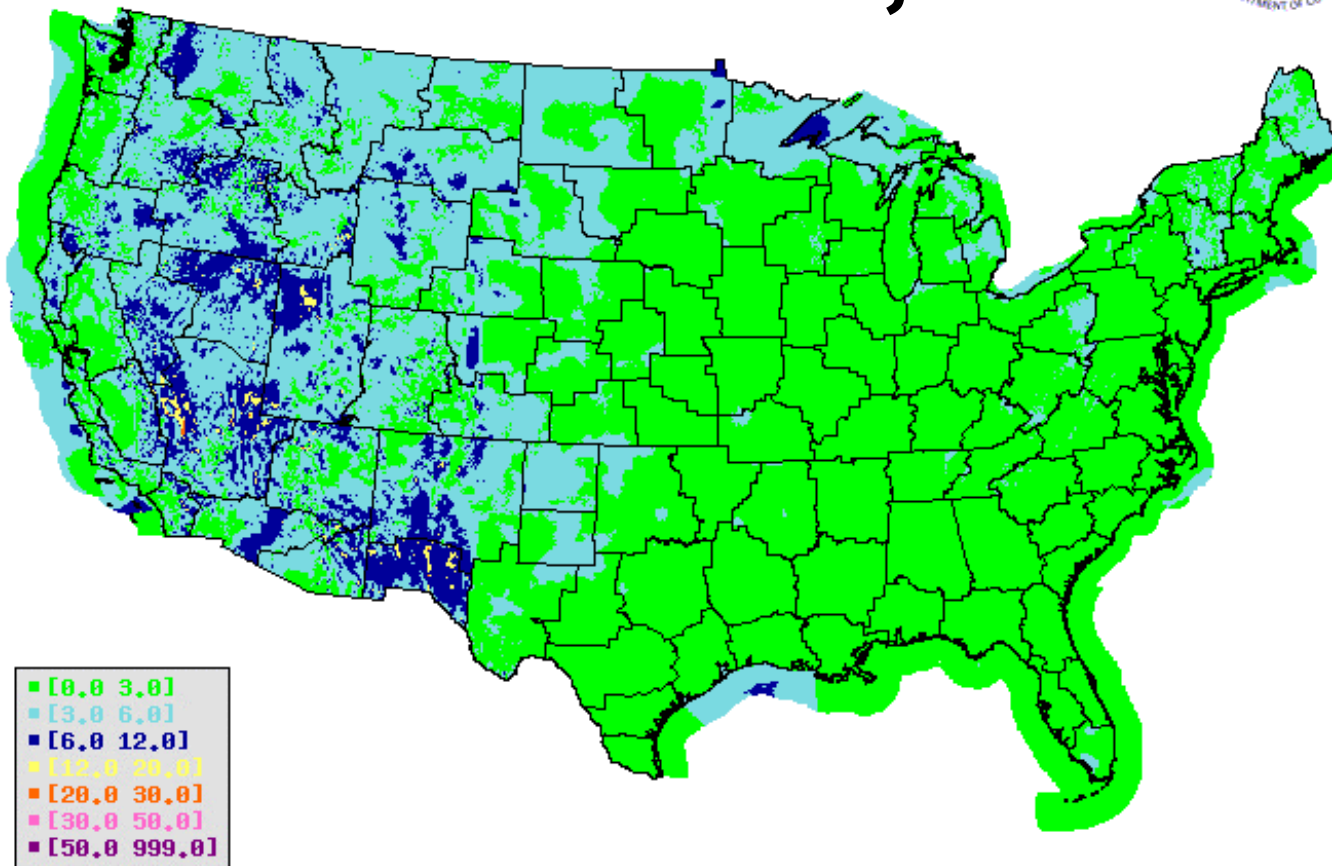
Temperature, MAE (F), NDFD vs Pnt Obs, 24(00Z)

Forecasts from Aug. 1, 2003 to Aug. 31, 2003

OVERALL	= 3.93
CENTRAL	= 3.71
EASTERN	= 3.77
SOUTHERN	= 4.35
WESTERN	= 4.01



Maximum Temperature MAE for 24 hr, 12Z



MAE, Surface Temperature vs RUC Analysis, 12Z 024 hr

Forecast Period: 8/1/03 - 8/31/03

VERSUS RUC : 20 km grid

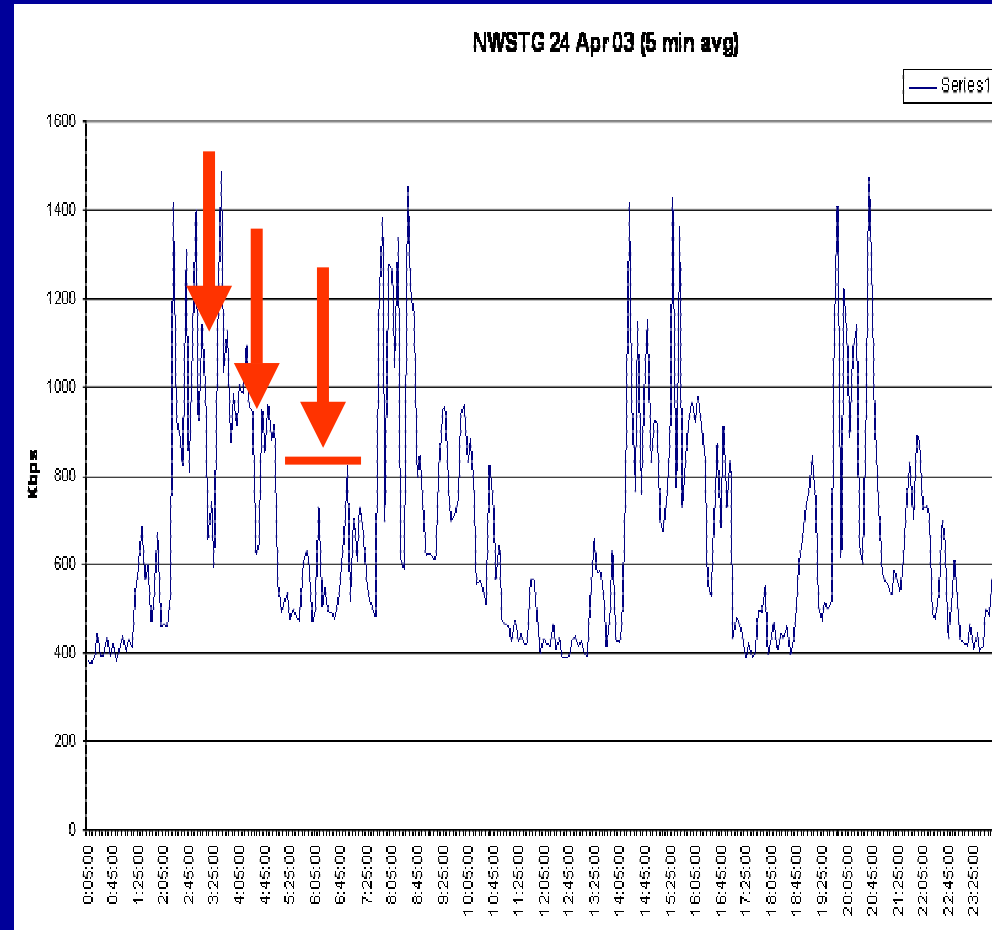
Early results from MDL's gridded verification

Updated Roadmap

- New prioritized list of action topics:
 - Analysis of Record
 - Digital Services forecast process
 - Climatology
 - Downscaling (long-term solutions)
 - Review of 10-506 (preliminary review to OCWWS by late March)
 - Uncertainty and probabilistic information
- Short term actions (next 2-3 months)
 - Verification (prioritize tasks in NVIWT Verification Plan)
 - Input to 10-102 (declaring elements official)

Activities with Ongoing Monitoring

- Grid change management
- GFE enhancements
- SBN data
 - GFS bottleneck on mainframe
- TCM (Tropical Cyclone Message)
- Gridded MOS



ISST and You

- Contact any ISST member with your IFPS ideas and concerns
- ISST Forum Teleconference
 - Lines available for all Region
 - ISST discusses current activities and S&T committee briefing highlights
 - Provides a forum for your feedback

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Closing Comments

- ISST is a formally recognized and active team addressing science related issues with regards to IFPS/GFE
 - A formal conduit between field personnel and NWSH
- ISST has already championed significant positive changes related to IFPS/GFE (at the WFO level)
- The team is championed by OST Jack Hayes
 - Tasked ISST to think freely
 - Potentially puts items on a fast track
- You have access to your ISST representative and therefore a method to elevate IFPS/GFE concerns

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